What is claimed is:

1. A composition of matter ~~having the characteristics of a fasting bear which composition has~~ pharmacological properties and which is a deproteinated isolate which has been obtained from a sample of urine or serum taken from a fasting bear from which food has been withheld for two weeks or more, which sample has been subjected to deproteination, then the deproteinated isolate having the pharmacological properties of inducing, when injected into another mammal, conditions observable in denning black bears including reduced heart rate, temperature reduction, or a tranquility distinguishable from normal behavior.

2. An ursus-like pharmacological composition of matter ~~resembling the characteristics of a~~ bear derived isolate, which fasting bear has not eaten for two weeks or more, which alone or in combination with other metabolites, when injected into a mammal other than a bear, produces at least one of the phenomena as exhibited by a denning black bear selected from the group comprising, reduced heart rate, reduced body temperature, or a tranquility distinguishable from normal behavior.

3. The composition of matter of claim 2, in which said mammal is a guinea pig.

4. A pharmacological composition of matter comprising at least one vital sign of behavioral modification substance present in the blood or urine of fasting bears, which fasting bears have not eaten for two weeks or more, said composition alone or in combination with ~~metabolites~~, when injected into a mammal other than a bear, produces reduced vital signs in said mammal.

5. The composition of claim 4, in which the mammal is a guinea pig.

6. The composition of claim 4, alone or in combination with metabolites, in which the reduced vital sign is reduced temperature.

7. The composition of matter of claim 4, alone or in combination with metabolites, in which said reduced vital sign is reduced pulse rate.

8. A composition of matter ~~having the characteristics of~~ comprising chemistry similar to an isolate of whole blood or whole urine sample taken from a fasting black bear, which fasting bear has not eaten for two weeks or more, which sample has been deproteinated to form the isolate composition which, when added to a carrier and injected into a mammal other than a black bear, produces any of the following conditions in said mammal:

a) reduced heart rate;

b) reduced temperature; or

c) wakeful tranquility.

9. The composition of matter of claim-8, in which said mammal is a guinea pig.

10. A composition of matter ~~having the characteristics~~ comprising chemistry similar to of the deproteinated urine or blood serum isolate of fasting bear, which bear has not eaten for two weeks or more, which, when administered to a mammal other than a denning black bear, produces improved bone remodeling.

11. An anti-osteoclastic pharmaceutical composition of matter, ~~having the characteristics of~~ comprising chemistry similar to the deproteinated urine or blood serum isolate of fasting bear which bear has not eaten for two weeks or more, which, when administered to a mammal other than a denning black bear, exhibits overall enhanced bone formation whether by enhanced osteoblastic activity, or diminished osteoclastic activity, or enhanced fibroblastic activity, or any positive combination of the foregoing, wherein the net result is enhanced bone remodeling.

12. A pharmacological ~~substance, having the characteristics of~~ compound comprising chemistry similar to a sample of whole blood or whole urine taken from a fasting black bear which fasting bear has not eaten for two weeks or more, which has been deproteinated; said deproteinated sample then being purified, isolated, or concentrated to the point which renders said sample, when injected into a mammal other than a bear, capable of eliciting a response of a denning black bear in mammals which do not den, said response including stimulating bone mass production; or increasing the recycling of urea, thus combating uremia and preserving body protein; or inhibiting muscular wasting.

13. A pharmacological ~~substance with a signature~~ compound comprising a marker exhibited in the deproteinated isolate of urine or blood of a fasting bear which bear has not eaten for two weeks or more, alone or in combination with metabolites, which isolate, when injected in a mammal other than a bear, produces tranquility in which said mammal remains calm but alert with a decrease in metabolism including reductions in body temperature or heart rate.

14. An ursus-like pharmacological ~~substance which is~~ comprising the deproteinated isolate of the urine or blood of a fasting bear which, when injected into a mammal other than a bear, produces phenomena as exhibited in a denning black bear which bear neither eats, drinks, urinates, nor defecates for lengthy periods of time, said phenomena including stimulation of bone production in mammals, including humans, at risk to develop osteoporosis, regeneration of protein from nitrogenous waste products at a rate faster than protein breakdown, and producing anorexia.

15. A pharmacological ~~substance having the characteristics of~~ compound comprising chemistry similar to a fraction of the aqueous portion of blood or urine taken from a fasting bear which has not eaten for two weeks or more, which can be used in the group of phenomena comprising treatment of osteoporosis, chronic renal failure, burns and trauma, loss of muscle mass and eating disorders such as obesity; or allowing safe long term space flights by maintaining bone and muscle mass in astronauts.

~~16.~~ 2. A method for obtaining an isolate from the blood or urine of a fasting bear which bear has not eaten for two weeks or more, such isolate being sufficiently free of impurities for repeated administration to mammals to induce activity of a kind observed in denning bears comprising the steps of:

- drawing a sample of blood or urine from said bear,
- deproteinating and extracting the isolate from such sample with organic solvents,
- further purifying the presence of said isolate by countercurrent chromatography, flash column chromatography, preparative thin layer chromatography, and/or high performance liquid chromatography, and
- testing the purity of the isolate so obtained by TLC and/or chemical or spectroscopic detection.

17. ~~A bear derived~~ An isolate, ~~having the characteristics of~~ comprising chemistry similar to an isolate obtained from a sample of the urine of a fasting bear, which bear has not eaten for two weeks or more, such isolate being derived by:

- first deproteinating the sample,
- second, further separating the sample chromatographically into fractions, and then
- third, testing the fractions for a purity of isolation which permits the isolate when administered to a mammal other than a bear to induce behavioral characteristics of denning.

18. A composition of matter ~~being~~ comprising an ursus-like pharmacological isolate ~~having~~ comprising ~~the characteristics of~~ chemistry similar to a urine sample concentrate taken from a fasting bear, which bear has not eaten for two weeks or more, which urine sample concentrate remains after deproteinating such sample and thereafter purifying the same by chromatographic treatment.

19. A pharmacological composition of matter, ~~having the characteristics of a~~ comprising chemistry similar to concentrate of a deproteinized sample of whole urine or blood taken from a fasting bear, which bear has not eaten for two weeks or more having the following properties:

- soluble in water, methanol, and 1-butanol,
- insoluble in less polar organic solvents including ethyl acetate, chloroform, toluene and hexane,
- stable at room temperature for four days or more,
- heat resistant to 65°C, and
- stores well when frozen in a light resistant container under nitrogen gas.

20. The pharmacological composition of matter as set forth in claim 19 above which gives a pink spot with ninhydrin at an R_f value of 0.74 to 0.80 on a silica plate with 1-butanol:acetic acid:water (4:1:1).

21. An ursus-like pharmacological composition of matter ~~having~~ comprising the following characteristics:

- soluble in water, methanol, and 1-butanol,
- insoluble in less polar organic solvents including ethyl acetate, chloroform, toluene, and hexane,
- stable at room temperature for four days or more,
- heat resistant to 65°C, and
- stores well when frozen in a light resistant container under nitrogen gas,
- which composition of matter has been obtained from deproteinating the urine or blood of a fasting bear which has not eaten for two weeks or more and
- which, when injected in a guinea pig, produces some of the same phenomena observable in a fasting bear, such as heart rate, reduced temperature, or wakeful tranquility.

22. A composition of matter comprising the deproteinated urine or serum of a fasting bear, which denning bear has not eaten for two weeks or more having the following properties:

- soluble in water, methanol, and 1-butanol,
- insoluble in less polar organic solvents including ethyl acetate, chloroform, toluene and hexane,
- stable at room temperature for four days or more,
- heat resistant to 65°C, and
- stores well when frozen in a light resistant container under nitrogen gas which, when injected into a mammal other than a bear, is capable of producing reduced heart rate, reduced temperature, or observable tranquility differing from normal.

23. The deproteinated composition of matter of claim ~~23~~ 22, 3 above which, when injected in a guinea pig, produces the following:

- increased osteoblastic activity, or
- decreased osteoclastic activity, thereby enhancing bone remodeling.

24. A composition of matter ~~having the characteristics of~~ comprising chemistry similar to a deproteinated urine or serum of a fasting bear, which bear has not eaten for two weeks or more, which composition has the following property:

- soluble in water, methanol, and 1-butanol.

25. The composition of claim 24 including the following property:

- insoluble in less polar organic solvents including ethyl acetate, chloroform, toluene and hexane.

26. The composition of claim 24 with the following property:

- stable at room temperature for four days or more.

27. The composition of claim 24 with the following property:

- heat resistant to 65°C.

28. The composition of claim 24 having the following characteristic:

- stores well when frozen in a light resistant container under nitrogen gas.

29. A composition of matter having the characteristics of deproteinated urine or serum of a fasting bear, which bear has not eaten for two weeks or more, having the following properties:

- soluble in water, methanol, and 1-butanol,
- insoluble in less polar organic solvents including ethyl acetate, chloroform, toluene, and hexane,
- stable at room temperature for four days or more,
- heat resistant to 65°C, and
- stores well when frozen in a light resistant container under nitrogen gas.

30. An effective therapeutic dosage of deproteinated urine or serum of a fasting bear which has not eaten for two weeks or more for producing the following behavior in another mammal:

- tranquility, or
- reduced heart rate, or
- increased osteoblastic activity, or
- decreased osteoclastic activity.

31. A composition of matter comprising the deproteinated urine or serum of a fasting bear, which bear has not eaten for two weeks or more and capable of producing the following behavior in a guinea pig injected with said composition produces the following:

- tranquility, or
- reduced heart rate, or
- increased osteoblastic activity, or
- decreased osteoclastic activity.

32. A composition of matter comprising the deproteinated urine or serum of a fasting bear which has not had food for two weeks or more and capable of producing when injected in a guinea pig:

- enhanced bone remodeling.

33. A composition of matter comprising the deproteinated urine or serum of a fasting bear which has not had food for two weeks or more, and capable of producing when injected in an ovariectomized rat:

- enhanced bone formation.

34. A method of obtaining an anti-osteoclastic agent from blood or urine of a fasting bear, which bear has fasted for two weeks or more, and sufficiently free from impurities for repeated administration to mammals to induce activity of a kind observed in denning black bears comprising the steps of:

- drawing a sample of blood or urine from said bear,
- deproteinating and extracting the isolate from such sample with organic solvents,
- further purifying the presence of said isolate by countercurrent chromatography, flash column chromatography, preparative thin layer chromatography, and/or high performance liquid chromatography, and
- testing the purity of the isolate so obtained by TLC and/or chemical or spectroscopic detection.

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35. A pharmaceutical composition for stimulating osteoblastic activity as shown by alkaline phosphatase production, said composition comprising an active agent obtained by the steps comprising:

(a) obtaining the serum or urine of a fasting bear;

(b) deproteinating said serum or urine;

(c) drying said deproteinated serum or urine;

(d) separating the product of step (c) into fractions by chromatography,

(e) drying the fractions obtained in step (d);

(f) testing the fractions for alkaline phosphatase stimulating activity in an *in vitro* bone culture.

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36. A pharmaceutical composition for stimulating osteoblastic activity as shown by alkaline phosphatase production, said composition comprising an active agent obtained by the steps comprising:

(a) obtaining the serum or urine of a fasting bear;

(b) deproteinating said serum or urine;

(c) drying said deproteinated serum or urine;

(d)(1) separating the product of step (c) into fractions by means of countercurrent chromatography using a 1-butanol:water:acetic acid (20:20:1) mixture, wherein the organic phase of said mixture is used as a stationary phase and the aqueous phase of said mixture is used as a mobile phase, wherein the first 100 ml eluted is Fraction I and each successive 100 ml to be eluted is a subsequent Fraction and continuing step (d) (1) up to the collection of Fraction VI.

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37. A pharmaceutical composition as in claim 36, wherein the aqueous phase of a 1-butanol:water:acetic acid (20:20:1) mixture as a mobile phase is passed through the product of step (c) at a rate of 4 ml/minute for 25 minutes for each of Fractions I thorough VI.

38. A pharmaceutical composition as in claim 36, wherein said composition containing an active agent is obtained by the further steps comprising:

(d)(2) after collection of Fraction VI, collecting Fractions VII and VIII by passing the aqueous phase of said 1-butanol:water:acetic acid (20:20:1) mixture as a mobile phase through the product of step (c) remaining after step (d) (1) at a rate of 10- ml/minute for 10 minutes for each of Fractions VII and VIII.

39. A pharmaceutical composition as in claim 38, wherein said composition containing an active agent is obtained by the further steps comprising:

(d)(3) after collection of Fractions VII and VIII, collecting Fraction IX by replacing the 1-butanol:water:acetic acid (20:20:1) mixture with methanol:water (1:1) and passing the mobile phase thorough the product of step (c) remaining after step (d) (2) at a rate of 10 ml/minute for 10 minutes for collection of Fraction IX.

40. A pharmaceutical composition as in claim 39, wherein said composition containing an active agent is obtained by the further steps comprising:

(d)(4) after collection of Fraction IX, collecting Fraction X, by replacing the 1:1 methanol:water mixture with methanol and passing the mobile phase through the product of step (c) remaining after step (d) (3) at a rate of 10 ml/minute for 10 minutes followed by forced air for collection of Fraction X.

41. A method for regulating bone remodeling comprising:

(a) obtaining the serum or urine of a fasting bear.

(b) deproteinating said serum or urine;

(c) drying said deproteinated serum or urine;

(d) separating the product of step (c) into fractions by countercurrent chromatography;

(e) during the fractions obtained in step (d);

(f) testing the fractions for osteoblast activity as shown by alkaline phosphatase production;

(g) exposing the bone to be regulated to an effective amount of a fraction having osteoblast activity as shown by stimulation of alkaline phosphatase.

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42. A pharmaceutical composition for inhibiting osteoblastic activity as shown by alkaline phosphatase production, said composition comprising an active agent obtained by the steps comprising:

(a) obtaining the serum or urine of a fasting bear;

(b) deproteinating said serum or urine;

(c) drying said deproteinated serum or urine;

(d) separating the product of step (c) into fractions by chromatography;

(e) drying the fractions obtained in step (d);

(f) testing the fractions for osteoblastic inhibition as evidenced by alkaline phosphatase inhibition in an *in vitro* bone culture.

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43. A method for regulating bone remodeling comprising:

(a) obtaining the serum or urine of a fasting bear;

(b) deproteinating said serum or urine;

(c) drying said deproteinated serum or urine;

(d) separating the product of step (c) into fractions by countercurrent chromatography;

(e) drying the fractions obtained in step (d);

(f) testing the fractions for osteoblastic activity as shown by alkaline phosphatase production;

(g) exposing the bone to be regulated to an effective amount of a fraction having osteoblast alkaline phosphatase inhibiting activity as shown by inhibition of alkaline phosphatase.

44. A composition functioning to reduce osteoblastic alkaline phosphatase comprising at least one ~~active~~ compound extracted from the serum or urine of a fasting bear, said at least one ~~active~~ substance being capable of functioning as an inhibitor of osteoblastic activity as shown by diminution of alkaline phosphatase production.

45. A composition functioning to reduce osteoclasts as demonstrated by a reduction in production of tartrate resistant acid phosphatase comprising at least one ~~active~~ compound extracted from the serum or urine of a fasting bear, said at least one ~~active~~ substance being capable of functioning as an inhibitor of osteoclastic activity as shown by diminution of tartrate resistant acid phosphatase.

46. A pharmaceutical composition comprising deproteinated whole urine or blood taken from a denning black bear combined with a pharmaceutical carrier, wherein said bear neither eats, drinks, urinates, or defecates for lengthy periods of time wherein said composition has the following properties:

- soluble in water, methanol, and 1-butanol,
- insoluble in less polar organic solvents including ethyl acetate, chloroform, toluene and hexane,
- stable at room temperature for four days or more,
- heat resistant to 65°C, and
- stable when frozen in a light resistant container under nitrogen gas, and wherein said composition is an effective amount to inhibit osteoclast activity and/or stimulate osteoblast activity.

47. The pharmaceutical composition of claim 46, wherein said composition gives a pink spot with ninhydrin at an R_f value of 0.74 to 0.80 on a silica plate with 1-butanol:acetic acid:water (4:4:1).

48. A composition of matter having the following characteristics:

- obtained from deproteinating the urine or blood of a fasting black bear which has not eaten for two weeks or more.
- soluble in water, methanol, and 1-butanol,
- insoluble in less polar organic solvents including ethyl acetate, chloroform, toluene, and hexane,
- stable at room temperature for four days or more,
- heat resistant to 65°C, and
- stable when frozen in a light resistant container under nitrogen gas, and
- wherein said composition, when injected in a guinea pig, produces observable conditions of reduced heart rate, reduced temperature, or wakeful tranquility.

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49. A composition of matter comprising the deproteinated urine or serum of a denning black bear, which denning black bear neither eats, drinks, urinates, or defecates for lengthy periods of time having the following properties:

- soluble in water, methanol, and 1-butanol,
- insoluble in less polar organic solvents including ethyl acetate, chloroform, toluene, and hexane,
- stable at room temperature for four days or more,
- heat resistant to 65°C, and
- stable when frozen in a light resistant container under nitrogen gas which, when injected into a guinea pig, is capable of producing reduced heart rate, reduced temperature, or observable tranquility differing from normal.

23 22
50. The composition of matter of claim 49 which, when subjected to *in vitro* analysis, produces the following:

- increased osteoblastic activity, or
- decreased osteoclastic activity, or
- increased fibroblastic activity.

24 22
51. The composition of matter of claim 49 which, when subjected to *in vivo* analysis with ovariectomized rats, produces the following:

- increased osteoblastic acitivity,
- decreased osteoclastic activity, or
- both.

25 22
52. A method of preparing the composition of claim 49 comprising the steps of:

- drawing a sample of blood or urine from a denning bear,
- deproteinating and processing the blood or urine to produce an isolate from said sample with organic solvents,
- further purifying the presence of said isolate by countercurrent chromatography, flash column chromatography, preparative thin layer chromatography, high performance liquid chromatography, and/or gas chromatography and mass spectroscopy (GC/MS), and
- testing the purity of the isolate so obtained by TLC and/or chemical or spectroscopic detection.

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53. A pharmaceutical composition for stimulating osteoblastic activity as shown by alkaline phosphatase production, said composition comprising an active agent obtained by the steps comprising:

(a) obtaining the serum or urine of a fasting bear;

(b) deproteinating said serum or urine;

(c) drying said deproteinated serum or urine;

(d) separating the product of step (c) into fractions by chromatography,

(e) drying the fractions obtained in step (d);

(f) testing the fractions for alkaline phosphatase stimulating activity in an *in vitro* bone culture.

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54. A pharmaceutical composition for stimulating osteoblastic activity as shown by alkaline phosphatase production, said composition comprising an active agent obtained by the steps comprising:

(a) obtaining the serum or urine of a denning bear;

(b) deproteinating said serum or urine;

(c) drying said deproteinated serum or urine;

(d) separating the product of step (c) into fractions by means of countercurrent chromatography using a 1-butanol:water:acetic acid (20:20:1) mixture, wherein the organic phase of said mixture is used as a stationary phase and the aqueous phase of said mixture is used as a mobile phase, wherein the product is eluted in 100 ml fractions and the first 100 ml eluted is Fraction I and each successive 100 ml to be eluted is a subsequent Fraction and continuing step (d) up to the collection of Fraction VI.

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55. A pharmaceutical composition as in claim 54, wherein the aqueous phase of a 1-butanol:water:acetic acid (20:20:1) mixture as a mobile phase is passed through the product of step (c) at a rate of 4 ml/minute for 25 minutes of each of Fractions I through VI.

56. A pharmaceutical composition as in claim 54, wherein said composition is obtained by the further steps comprising:

(e) after collection of fraction VI, collecting Fractions VII and VIII by passing the aqueous phase of said 1-butanol:water:acetic acid (20:20:1) mixture as a mobile phase through the product of step (c) remaining after step (d) at a rate of 10 ml/minute for 10 minutes for each of Fractions VII and VIII.

57. A pharmaceutical composition as in claim 56, wherein said composition is obtained by the further steps comprising:

(f) after collection of Fractions VII and VIII, collecting Fraction IX by replacing the 1-butanol:water:acetic acid (20:20:1) mixture with methanol:water (1:1) and passing the mobile phase through the product of step (c) remaining after step (e) at a rate of 10 ml/minute for 10 minutes for collection of Fraction IX.

58. A pharmaceutical composition as in claim 57, wherein said composition is obtained by the further steps comprising:

(g) after collection of Fraction IX, collecting Fraction X, by replacing the methanol:water (1:1) mixture with methanol and passing the mobile phase through the product of step (c) remaining after step (f) at a rate of 10 ml/minute for 10 minutes followed by forced air for collection of Fraction X.

59. A method for regulating bone remodeling comprising:

(a) obtaining the serum or urine of a denning bear;

(b) deproteinating said serum or urine;

(c) during said deproteinated serum or urine;

(d) separating the product of step (c) into fractions by countercurrent chromatography;

(e) drying the fractions obtained in step (d);

(f) testing the fractions for osteoblast activity as shown by alkaline phosphatase production;

(g) exposing the bone to be regulated to an effective amount of a fraction having osteoblast activity as shown by stimulation of alkaline phosphatase.

60. A method as in claim 58, wherein said countercurrent chromatography fractions are obtained by using the organic phase of the 1-butanol:water:acetic acid mixture as the stationary phase and the aqueous phase of said mixture as the mobile phase; followed by washing with a methanol:water mixture; followed by washing with 100% methanol.

61. A pharmaceutical composition containing for inhibiting osteoblastic activity as shown by inhibition of alkaline phosphatase production, said active agent obtained by the steps comprising:

(a) obtaining the serum or urine of a denning bear;

(b) deproteinating said serum or urine;

(c) drying said deproteinated serum or urine;

(d) separating the product of step (c) into fractions by means of countercurrent chromatography using a 1-butanol:water:acetic acid (20:20:1) mixture, wherein the organic phase of said mixture is used as a stationary phase and the aqueous phase of said mixture is used as a mobile phase, wherein the product is eluted in 100 ml fractions and the first 100 ml to be eluted is Fraction I and each successive 100 ml to be eluted is a subsequent Fraction, and continuing step (d) up to the collection of Fraction III;

(e) drying the said fractions obtained in step (d); and

(f) testing the fractions for osteoblastic inhibition in an *in vitro* culture.

62. A method for regulating bone remodeling comprising:

(a) obtaining the serum or urine of a denning bear;

(b) deproteinating said serum or urine;

(c) drying said deproteinated serum or urine;

(d) separating the product of step (c) into fractions by countercurrent chromatography;

(e) drying the fractions obtained in step (d);

(f) testing the fractions for osteoblastic activity as shown by alkaline phosphatase production;

(g) exposing the bone to be regulated to an effective amount of a fraction having osteoblast alkaline phosphatase inhibiting activity as shown by inhibition of alkaline phosphatase.

63. A pharmacological composition of matter comprising the capability of enhancing bone formation in ovariectomized rats taken from a substance present in the blood or urine of fasting bears, which when fasting are unique in that they have not eaten for two weeks or more, said composition including a quantity of resorptive form of 24,25-dihydroxyvitamin D_3 which stimulates bone formation.

64. A pharmacological composition of matter ~~taken from~~ comprising the blood or urine of fasting bears, which bear had been fasted for two weeks or more, said composition having a molecular weight of 100 or less, which composition when injected into a mammal other than a bear, which mammal has been ovariectomized, produces by comparison to an ovariectomized mammal not treated with said composition of matter, enhanced bone growth.

65. In the pharmacological composition of matter of claim 64, said composition being characterized by an operative and effective quantity of 24,25-dihydroxyvitamin D_3.

66. The method of producing a pharmaceutical composition from the blood or urine of a fasting bear, which bear has not eaten for two weeks or more, comprising the steps of:

- harvesting the blood or urine from said bear,
- using counter current chromatography (CCC) to divide the thus withdrawn composition from the bear into 10 fractions; and isolating the inhibitors of bone formulation in Fractions I, II, and III, and purifying the Fractions V, VI, and VII that contain potent stimulation of bone formation, both in the stimulation and proliferation of osteoblasts and fibroblasts as well as containing inhibitors to osteoclastic formation and direct inhibitors of resorption by osteoclasts.